

## **Guidelines for Helping Non-Agricultural Land Owners**

By Tim Bondelid, RappFLOW Volunteer

Most of these guidelines have been gleaned from working with Greg Wichelns (CSWCD), Mark Malick (retired landscaper from the National Park Service), and Jack and Sally Price (Master Gardeners).

The goal is to as much as possible prevent nonpoint source (NPS) pollution from entering our streams. The primary pollutants of concern for RappFLOW are: Nitrogen, Phosphorous, sediment, and bacteria (fecal coliform, e-coli).

Small streams are as important as larger streams. If the pollution gets into, say, Keyser Run, it will flow into the Thornton River and some of it (especially the Nitrogen!) will travel downstream into the Rappahannock River and then into the Chesapeake Bay. The Bay is in serious trouble and some of our funding comes from various programs set up to improve the Bay water quality.

Also, landowners that have property that drain into the Sperryville storm sewer system are the same as if they lived on the Thornton; that's where the stormwater goes.

It is important that our message is: “There is always something that can be done to help reduce the pollution coming from a landowner's property”.

The Riparian Buffer is very important: it is “the last line of defense” in keeping pollution out of the stream. Also, the buffer stabilizes the stream bank and the trees help keep the water cooler and provide beneficial “leaf litter” for the stream. These actions of the buffer greatly improve the water quality, helping the macroinvertebrates thrive and make better “homes” for fish. Proper buffers can transform a stream from having no fish or bottom dwellers like Carp into a stream that “cold water” fish like Trout can thrive in.

Buffers can be established in many ways. It can be as simple as not mowing 35 to 50 feet along the stream and letting the trees that “want” to be there develop. Other actions can be done, such as developing an attractive landscaping plan and then planting the trees, shrubs, etc. Our project at the Old Schoolhouse is a perfect example of this. Also, note that Cliff Miller stopped mowing along that stretch of the Thornton River 2 years ago and that already helped a lot, and there were several very desirable “volunteer” trees growing that we retained. Nature finds a way!

Some places like businesses or other homeowners will want to retain a nice waterfront view. This can be done with “clever” landscaping which could use more low-growing plants, nice walkways and seating areas. The message as always is: something can be done that can help and also meet the landowner's desires.

It is important in designing or helping with a buffer that there is not a “back door” such as a drainage ditch or a pipe that circumvents the buffer. Many of the benefits of the buffer are then lost!

A “holistic” view should be taken when looking at the property. The overall drainage, lawns, swales, and ponding areas need to be considered. One of the best ways to get this holistic viewpoint is to observe what happens with the runoff in a heavy rain. The landowner could do this and/or a RappFLOW team member could go out and check it out. Ponchos are really nice.

There are many things that can be done on the property BEFORE runoff reaches the stream or drainage ditch. The “mantra” is to SLOW the water down, let it seep into the ground. For instance, a landowner could select an area to stop mowing and let it grow up into a forested area. This will be a haven for many interesting forms of wildlife, birds, and butterflies. Undesirable trees or other plants can be cut down and then a herbicide can be applied to the stump with a paint brush. Alantys (“tree of heaven”) is one such common “invasive” tree that landowners may want to control in this way. RappFLOW can help by getting advice on the best herbicide(s) to use when.

Proper lawn care practices can make an incredible difference and don’t cost anything and can save money! Five important things to consider are:

1. Mow higher.
2. Fertilize only as needed.
3. Don’t rake up the clippings – these are actually a form of “free” fertilizer and they return nutrients to the soil.
4. Be very selective about using herbicides, and be sure they biodegrade quickly. Advice on proper herbicide use can be obtained by RappFLOW for the landowner.
5. As feasible, clean up after pets – this is a source of pollution just like cow manure is.

Mowing higher, say 4 inches instead of 2 inches is better for the grass and will really help runoff infiltrate into the soil – it SLOWS the water down. Also, the higher you mow, the deeper the roots of the grass go. This can help the grass in dry weather conditions because the roots are reaching farther down to get moisture. Did you know that grass roots are deeper than tree roots? Amazing but true. The grass uses the nutrients in the runoff and removes pollution from the shallow groundwater, and this also helps keep pollution from going into the deeper groundwater that our wells use for our water supply.

The instructions on “weed and feed” bags or from the lawn care companies almost always (always?) recommend fertilizing much more than is necessary, often four times a year. The excess nitrogen and phosphorous from the over-fertilizing will become a source of excess nutrients that can only contribute to the pollution problems. Note that no farmer fertilizes that much, they tend to fertilize once a year, usually in the fall. RappFLOW can and will help the landowner on this issue. Soil test kits can be obtained free of charge from the local Agricultural Extension Office. In Rappahannock County, the office is in

Little Washington, the contact is Kenner Love at 540-675-3619. The soil sample is then sent to Virginia Tech University along with a check for seven dollars. What is returned is a complete soil analysis and recommendations for a Nutrient Management Plan. This is a great deal! RappFLOW will help the landowner through the entire process. We'll even pay the seven bucks.

Driveways can be a major source of pollution, especially sediment. This is a challenge for everyone, and RappFLOW will do what it can, but cannot guarantee a complete solution. One possibility is to evaluate the areas where the driveway runoff goes and see if some of the solutions described above can be used along the shoulders or ditches where the flow from the driveway goes.

Some areas with high runoff such as parking lots and drainage from rooftops can be helped by other measures such as raingardens. A raingarden is a "structural" improvement that provides control for much more runoff in a smaller space. For instance, much of the runoff from the Old Schoolhouse flows to the left of the building, and a raingarden located just in front of the boat would help a lot in "capturing" this runoff and letting it seep into the ground. This raingarden is in our ultimate plan for the Old Schoolhouse site. The general guideline is to control at least the first ½ inch of runoff because studies have shown that most of the pollution from parking lots comes in this first ½ inch.

There can always be other situations or variants on these situations, and creative solutions and/or calling on our "partners" such as CSWCD should be considered as needed.